UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,533	07/23/2003	Jon H. Krueger	P16541	6656

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Grossman, Tucker, Perreault & Pfleger, PLLC
c/o PortfolioIP
P.O. Box 52050
Minneapolis, MA 55402

EXAMINER
HOMAYOUNMEHR, FARID

ART UNIT	PAPER NUMBER
2132	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

		Application No.	Applicant(s)
Office Action Summary		10/624,533	KRUEGER ET AL.
		Examiner	Art Unit
		Farid Homayounmehr	2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2006*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to communications: application, filed 7/23/2003;

amendment filed 11/14/2006.

2.   Claims 1-40 are pending in the case.

Response to Arguments

3.   Applicant's arguments have been fully considered.

3.1.   Rejection under 35 U.S.C. 101 has been withdrawn due to amendments by the

applicant.

3.2.   The rejection under 35 U.S.C. 112 outlined in the last office action has been

withdrawn due to amendments by the applicant. Note the new rejection due to

amendments in the next section.

3.3.   Applicant's argument regarding rejection under 35 U.S.C. 102 has been fully

considered, but is not persuasive. Applicant has argued that Douceur does not

anticipate the amended claims 1 and 14, or claims 25 and 33, because Douceur does

not disclose the use of the position of a matching signature value. It is noted that the

limitations of amended claims 1 and 14 are different than limitations of claims 25 and

33. The amended claims 1 and 14 include, a comparator (among other elements), and

specific connectivity of the comparator output to a second memory array. The

comparator clearly generates the position of matched signature as an output data.

Limitations of claims 25 and 33 are much broader, as they do not require the

comparator, the required connections, and determination of the specific position of

where the matched signature was found, and using it to retrieve data from a second

memory array. In comparison, Limitations of claims 25 and 33 simply require a second

data retrieval using the index value and a position of the signature value.

Douceur does anticipate the limitations of claims 25 and 33, because it teaches using

the position of where the signature match is found. As shown in the cited columns 1 and

2, Douceur teaches finding a position on the linked list where the key value (signature)

is matched. Column 2 line 23-24 reads: "Finally, this record has a key value of J,

indicating that the correct record has been found." The data to be retrieved is at the

position where the key (signature value) is found. Therefore the data is retrieved using

the signature and a position of the signature, which is what claims 25 and 33 requires.

As mentioned above, requirements of amended claims 1 and 14 are more specific and

closer to what is shown in applicant's Fig. 1. A new ground of rejection is discussed with

regards to claims 1 and 14 in the next section.

Applicant further argues: "Douceur does not appear to disclose a plurality of index values and a signature value output from a hash value generator, as recited in claims 1 and 14, or generated through a hash function, as recited in claims 25 and 33." It is noted that claims 1 and 25 do not require generation of a plurality of index values, and only claims 14 and 33 do.

With regards to claim 14, it is required for the generator to have outputs for at least two index values. Per column 18 lines 19-21: "One such representation involves maintaining a pointer array or table with pointers corresponding to hash table base segments." Therefore multiple pointers are generated, which anticipates "outputs for at least two index values." All the claim language requires is performing a search for each index, which is also performed by Douceur. Also note that Douceur performs a separate search for each index generated as shown in column 2. The example shown includes multiple key values such as "A", "B", each of which having a different address (index), and each involving a search. Requirements of claim 33 are similar to claim 14.

Based on the above discussion, applicant's argument regarding allowability of claims 1, 14, 25 and 33 are not persuasive.

With regards to dependent claims 8-10, 19-21, 30-32 and 38-40, applicant has argued that cited limitation of "IP source and destination address and TCP source and destination port designators" is not disclosed by Douceur. However, the intended use of

database systems is to store data. The claim limitations require that the stored data be

TCP/IP data, without any modification or change specific to TCP/IP data. Therefore, the

mentioned limitation is nothing more than intended use of database systems, applied to

TCP/IP data. Douceur's invention is related to storing and searching data in database

systems, regardless of the type of data. As storing and searching for TCP/IP data in

databases had been known and widely practiced well before the time of invention,

storing such data is well within the intended use of Douceur, unless it is proved that

Douceur's system cannot store or search for TCP/IP data. Therefore, unless it is shown

that Douceur cannot store TCP/IP data, storing and searching for TCP/IP data is taught

by Douceur, as it teaches storing any type data.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being

incomplete for omitting essential elements, such omission amounting to a gap between

the elements. See MPEP § 2172.01. The omitted elements are: Claims 1 and 14 are

directed to an apparatus comprising elements such a memory arrays and a comparator.

While the claim language identifies inputs and outputs for those elements, it does not

specify how the output is related to the input. In other words, the functionality of the

elements is not completely defined. For example, the comparator's inputs are the

signature value and the output of the first memory array. It is not clear what the output

of the first memory array is, or what is meant by a position of a matching signature

value. As another example, it is not clear how the second memory is configured to

provide data being retrieved.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed
> publication in this or a foreign country or in public use or on sale in this country, more than one year prior to
> the date of application for patent in the United States.

7.   Claims 25-40 are rejected under 35 U.S.C. 102(b) as being anticipated by

Douceur (U.S. Patent No. 6,067,547, dated May 23, 2000).

7.1.   As per claim 25, Douceur is directed to a data retrieval method (column 9 lines

55-60), comprising: responsive to input data, generating an index value and a signature

value through a hash function, retrieving a first data unit using the index value,

comparing signature values in the first data unit to the generated signature value

(column 3 line 50 to column 4 line 45 describes how a hash of input data is generated

from input data, and how the hash is used locate a pointer to where the data record

corresponding to the input signal is identified by searching for a match with a key.

Column 4 lines 21 to 28 discloses splitting the hash into an index and a signature), if a

match occurs, retrieving a second data unit using the index value and a position of the

signature value (column 1 liner 35 to column 2 line 37).

7.2.   As per claim 26, Douceur is directed to the data retrieval method of claim 25,

further comprising comparing the input data to a portion of data in the second data unit

and, if they match, outputting a second portion of the data unit (column 1 line 60 to

column 2 line 39. The second portion of the data unit is the other data fields in the

record corresponding to the key).

7.3.   As per claim 27 Douceur is directed to the data retrieval method of claim 26,

further comprising, if the input data and the data portion do not match, outputting an

indication that the input data misses the memory (column 2 line 25-39).

7.4.   As per claim 28, Douceur is directed to the data retrieval method of claim 25,

further comprising, if the generated signature does not match any signature in the first

data unit, allocating a new entry to the input data and storing the generated signature in

an unoccupied position of the first data unit (claim limitation describes the process of

insertion in a database equipped with hash table search mechanism as described in

column 3 line 30 to 57).

7.5.   As per claim 29, Douceur is directed to the data retrieval method of claim 25,

wherein the index value and signature value each are selected from non-overlapping

portions of a common hash value (column 4 line 25-27).

7.6.   As per claims 30 to 32, Douceur is directed to the data retrieval method of claim

25, wherein the input data is IP source and destination addresses and TCP source and

destination port designators and the IP address is either 32 or 128 bit long (Douceur

method has no limitation on type and length of data that is input to the system).

7.7.   Claims 33 to 40 are substantially the same as claims 25-32 above, with the

added requirement of generating multiple index values in claim 33, as opposed to one

index value in claim 25. Douceur column 18, lines 10-35 and Fig. 13 are directed to

generation of multiple index values and then performing the search the same way as it

is outlined in claims 25-32.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douceur

(U.S. Patent No. 6,067,547, dated May 23, 2000) as applied to claims 25-40 above, and

further in view of Greene (U.S. patent No. 6'631'419, filed 9/22/1999).

8.1.   As per claim 1, Douceur and Greene are directed to an apparatus for use in data

retrieval, comprising: a hash value generator having outputs for an index

value and a signature value, (Douceur column 3 line 50 to column 4 line 45 describes

how a hash of input data is generated from input data, and how the hash is used to

locate a pointer to where the data record corresponding to the input signal is identified

by searching for a match with a key. Column 4 lines 21 to 28 discloses splitting the

hash into an index and a signature) a first memory array having an input coupled to the

index value output, a comparator, having inputs coupled to the signature value and an

output from the first memory array (any of the hash tables indicated in Figures 1-13

and their associated text anticipates a first memory array, a comparator and the

connections. As an specific example, see Fig. 1, where the memory (hash table) is

searched based on an index value (address generated) as shown in col. 3 lines 25-57,

and a match is found by comparing the key with the values in the linked list, as shown

in col. 3 lines 57 to 65),

Douceur teaches data retrieval by searching for a signature match, and retrieving the

data in the record where the matched signature was found. Douceur also teaches

reporting the position of the matched information in column 15 line 20 to column 16 line

10, as it shows how the pointers to location of the matched data in the linked list must

be adjusted when there is a split. Therefore Douceur determines the location of the

matched data (output the location of matched data) in order to adjust the pointers to

the new location of data, and teaches the comparator having an output for a position of

a matching signature value. However, Douceur does not specifically teach finding a

second index based on the information found at the location where the match was

found, combining the second index with the original index to find the address where the data to be retrieved is stored.

Greene teaches generating an address based on part of the input data, finding the information stored at the generated address, and using the information stored at the generated address as a secondary index to be combined with the generated address to determine another address where the data is located (see for example Fig 1 or 23 and associated text). Therefore Greene teaches the limitation of a second memory array having inputs coupled to the index value output and the output of the comparator, the second memory array being configured to provide data being retrieved.

Greene and Douceur are analogous art as they are both directed to methods for fast data retrieval. At the time of invention, it would have been obvious to a person skilled in art to combine the additional indexing technique taught by Greene to Douceur's method of fast data retrieval using hash tables. The combination would find a matched signature in Douceur's hash table and report the position of where the match was found, and combine that data with the first index to determine the address of the location where the data to be retrieved is located.

The motivation to combine is improving the speed of data retrieval and expansion of memory addressable space as outlined in Greene column 1 line 24 to 3 line 15.

8.2.   Limitations of claims 2-24 are substantially the same as limitations of claim 1 and

claims 25-40 above. Note also that using the TCP/IP data as data to be retrieved,

which is required by claims 8-10 and 19-21 is clearly taught by Greene. ¨

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Farid Homayounmehr whose telephone number is (571)

272-3739. The examiner can be normally reached on 9 hrs Mon-Fri, off Monday

biweekly.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Gilberto Barron can be reached on (571) 272-3799. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

> Information regarding the status of an application may be obtained from the
> Patent Application Information Retrieval (PAIR) system. Status information for
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> free).

Farid Homayounmehr

2/2/2007

GILBERTO BARRON JR
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100